UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/194,567	04/07/1999	MATS LEIJON	705/71503280	3358

25269 7590 11/17/2003

DYKEMA GOSSETT PLLC
FRANKLIN SQUARE, THIRD FLOOR WEST
1300 I STREET, NW
WASHINGTON, DC 20005

EXAMINER	
MULLINS, BURTON S	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/194,567	LEIJON ET AL.	
	Examiner	Art Unit	
	Burton S. Mullins	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-14 and 16-19* is/are rejected.

7)☒ Claim(s) *4 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 November 1998* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Pursuant to the Board of Appeal's final decision regarding U.S. Application No. 08/973,019, suspension has been lifted. As set forth in the decision on petition requesting suspension, the instant application was granted a suspension pending the decision on appeal of the '019 application. On November 27, 2002, the Board affirmed the rejection of the '019 application and on August 27, 2003, the Board denied applicant's request for reconsideration, thus terminating prosecution of the '019 application. An action on the merits follows.

Claim Objections

2. Claims 5-6 are objected to because of the following informalities: In claim 5, insert --the— before "resilient layer". In claim 6, recitation "at outer attachment points in the stator" should be ---at outer attachment points on the stator---. Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "slit rubber tubing cladding around each outer layer..." (claims 4 and 15) must be shown or the feature(s) canceled from the claim(s). Figs.3-4 do not show slits in the tubing. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Recitation "the positioning means" lacks antecedent basis.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-2 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck (US 3,014,139) in view of Elton et al. (US 4,853,565). Shildneck teaches a large, turbine generator (c.1, lines 13-14), i.e. "high voltage" machine, comprising: a stator (core 14, Fig.3); a rotor (not shown, but part of turbine generator); and a high voltage, stator winding including: several radially-spaced layers (Figs.1&4), end windings 18 outside the stator (Fig.3) which cross one another (only one winding 18 is shown for clarity in Fig.3, but plural windings cross one another), and a flexible, current-carrying conductor or cable 1 (Fig.1). However, Shildneck's conductor/cable does not comprise inner- and outer-semiconducting layers and an insulation therebetween.

Elton et al. teaches a high-voltage, electrical cable comprising current-carrying conductors 102 (Fig.7); an inner, semi-conducting "grading" layer 104 made of pyrolized glass fibers (c.7, lines 19-20) surrounding and being in electrical contact with the current-carrying conductor 102; a solid insulation layer 106 surrounding and contacting the inner layer; and an outer layer 110 having semi-conducting properties surrounding and contacting the

solid insulating layer 106, as well as being in contact with ground, to thus bleed off static charge and thus prohibiting development of corona discharge (c.7, lines 23-28; lines 64-68). In another form, a predetermined reference potential may be coupled to the semi-conducting layer (c.8, lines 13-21).

It would have been obvious to one having ordinary skill to modify Shildneck's high voltage machine winding and provide a high voltage, electrical cable per Elton et al. with grounded inner and outer semi-conductors separated by an insulator since such a cable would have been desirable to prohibit development of corona discharge.

Regarding claim 2, note Fig.5 of Elton teaching use of insulated blocks 54, ties 56 and axial brackets 58a, 58b, 58c to secure and provide support for the windings.

Regarding claim 6, the layers of Elton's windings are held in fixed positions at outer attachment points in the stator (Fig.5).

Regarding claim 7, note that the "positioning means" (for the windings) in Elton comprise insulated blocks 54 (c.6, line 5) which inherently have a "selected resistivity".

Regarding claim 8, Fig.7 of Elton teaches a cable winding.

7. Claims 3, 5, 9-14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck in view of Elton et al. and further in view of Cooper et al. (US 4,618,795). Shildneck in view of Elton discloses the claimed invention except for a teaching of various forms and positioning of the securing means and resilient means in the stator end winding layers.

Cooper teaches positioning means comprising strain blocks 24 between upper and lower coils 14a/14b having a resilient layer comprising resilient "filler" material 30 (Fig.2) located in

a contact area between the two coil layers 14a/14b and a securing device comprising bands 32 and 46/48/50/52 (Figs.2&3), mutually securing the two layers, such that the resilient layer permits a certain permissible amount of relative non-sliding movement between the layers due to skewing of the resilient material in the contact area, said resilient material having a thickness sufficient to accommodate the permissible relative movement (c.2, lines 7-14). The banding elements 32, 46, 48, 50, 52 made of epoxy resin impregnated fabric for securing the differing regions of the end windings. Cooper teaches a method of consolidating the generator end turns while providing for thermal compensation, cushion, and reduced friction between the end turn coils. Cooper teaches providing a decoupled brace located radially outside the end turns having a bottom piece secured to a bracket secured to the core and a top piece adjacent the coil, an intermediate decoupler provided between the adjacent coils including an elastomeric material for cushioning as well as for allowing free axial movement between the top and bottom pieces of the brace.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided means for securing the winding layers as well as cushion between the layers of the coils as taught by Cooper in the electrical machine of Shildneck and Elton et al. since such a modification according to column 2, lines 1-34 of Cooper et al. would provide support, reduced stress and wear between the stator coil end turns.

Regarding claim 5, note bundling tape or banding 32 (Fig.2) in Cooper.

Regarding claims 9 and 18, the brackets 22 and blocks 24 comprise conductive material in Cooper, with filler material 30 and various banding elements 46-54 comprising insulating material.

Regarding claim 11, note resilient filler layer 30 in Cooper.

Regarding claims 12-13, Cooper's arrangement secures the cable layers 14a/14b while allowing movement between the layers (c.2, lines 7-14; c.5, lines 3-12). The resilient filler material 30 inherently possesses a thickness sufficient to permit relative movement.

Regarding claims 14 and 19, note tapes 48/58 disposed about the cables in the contact area (Fig.1) in Cooper.

Regarding claim 16, note tape 32 and 46-52 wrapped around the layers where the cables come into contact and cross in Cooper (Figs.1-2).

Regarding claim 17, the layers in Elton and Cooper are held at fixed positions outside their respective stators.

Allowable Subject Matter

8. Claims 4 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not fairly teach the claimed machine with the claimed positioning means including, inter alia, a resilient layer comprising a length of slit rubber tubing cladding around each outer layer in the contact area of the crossings. Neither is there teaching of a sleeve comprising a length of rubber tubing having a longitudinal slit (claim 15). In particular, there is no teaching in Cooper that the filler material 30 or bandings 32 about the outer winding layer 14a in the contact area of the crossings comprise a length of slit rubber tubing. Further, a rubber "layer" 44a/44a' (Figs.3-4) is between a bottom surface of a

top piece 40 and the upper surface 42a of bottom piece (c.4, lines 37-40) and does not clad an outer winding layer.

Response to Arguments

9. Applicant's arguments filed 8-30-02 have been fully considered but they are not persuasive. Applicant argues that Shildneck is a high current/low voltage machine and would not work in a high voltage environment. However, the examiner notes that the claims do not recite anything about "high voltage". Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that Elton's cable is rigid and not flexible. The examiner notes that Elton's windings 50 "initially extend axially and then bend circumferentially so as to provide a connection between one bar and a second circumferentially disposed bar in the stator core" (c.5, line 66-c.6, line 1). The manner of bending is shown in Fig.5. Thus, adequate "flexibility" is provided by such a bend. Also, Elton's teaching at c.8, lines 3-9 that "the semi-conducting layer is a glass fiber which can be chopped, mixed with resin and molded, or blown on any complex shaped substrate [so that] the layer can be placed in intimate contact with substantially all of the exterior surface of the insulator or housing..." suggests that the semi-conducting layer can be "molded" or "blown" onto a cable without causing cable rigidity. Elton also refers to US 4,510,077 (Elton '077), incorporated by reference therein, for a detailed description of the characteristics of the cable material. Elton '077 teaches that a lubricant may be used in the material "to impart lubrication to and between the individual glass

fibers, and as such permits the threads and cloths manufactured from these fibers to be subjected to mechanical stresses as incurred by bending, folding and twisting without breakage of the fibers" (c.4, lines 8-16). Thus, Elton '077 teaches how to make the semi-conductive material flexible.

Applicant argues that Elton teaches exclusive embodiments and that the second embodiment in Fig.7 relates strictly to an electrical transmission cable. This is not convincing since Elton teaches that the embodiments shown in Figs.1-7 are suitable for use in windings in a dynamoelectric machine (abstract, lines 7-8). The cable of Fig.7 is disclosed as being a further embodiment of Figs.1-6, which are shown to be suitable for windings on a stator in a dynamo-electric machine (c.8, lines 26-38).

With regard to applicant's assertion that one of ordinary skill would not have a reasonable expectation of success if the machine in Shildneck were modified with high voltage cables such as Elton due to the latter's purported "inflexibility and brittleness," the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Elton's cable winding minimizes the possibilities of corona discharge. Further, the whole notion that the glass layer of cable would crack when wound on the machine is completely unsubstantiated. Or is applicant saying that due to normal wear and tear, cracks would eventually develop? In either case, given Elton's explicit desire to prevent corona discharge in stator core windings, it is

unreasonable to assume that one of ordinary skill would allow the cable to "crack" when wound around a core and even more unreasonable to describe the cracks as "facilitating" corona discharge.

With regard to the rejection of claims 3 and 5 over Shildneck, Elton and Cooper, applicant argues that even if combinable, the references do not teach the feature of "end windings form layers crossing each other and *coming into contact....*" The layers of the end windings come in to contact in the sense that the top and bottom coils 14a/14b in Cooper, for example, contact one another via the filler material 30 and banding 32 (Fig.2). Applicant argues that Cooper does not teach "positioning means" which permit a selected permissible amount of non-sliding relative movement between the cables. However, Cooper's Dacron felt-impregnated layer 41 (Fig.) provides a conformable or form fitting layer adjacent the underside of coil 14b (c.4, lines 32-34) which permits movement due to thermal effects (c.5, lines 8-11).

Information Disclosure Statement

10. The information disclosure statement (IDS) submitted on 27 November 1998 has been considered by the examiner. The information disclosure statement (IDS) submitted on 30 August 2002 has been received but the reference number appears to be incorrect.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the

examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
4 November 2003